SECTION 02374: EROSION CONTROL

1 PART 1 GENERAL

1.1 SUMMARY

A. Related Sections:
   1. Section 02200 - Earthwork

1.2 REFERENCES

A. ASTM International:
   1. ASTM D4632 - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.
   2. ASTM D3786 - Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics.
   3. ASTM D4833 - Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics.
   4. ASTM D4533 - Standard Test Method for Trapezoid Tearing Strength of Geotextiles.
   5. ASTM D4355 - Standard Test Method for Trapezoid Tearing Strength of Geotextiles.
   6. ASTM D4751 - Standard Test Method for Determining Apparent Opening Size of a Geotextile.
   7. ASTM D4491 - Standard Test Methods for Water Permeability of Geotextiles by Permittivity.

1.3 SUBMITTALS

A. Section 01300 - Submittals: Requirements for submittals.

B. Erosion and Sedimentation Control Plan and maintain one copy of document on site.

C. A sample of the silt fence geotextile material and manufacturer specifications, which meet the following specifications, shall be provided to Ecology's representative a minimum of 10 days prior to installation. Material must be approved before installation can proceed.

2 PART 2 PRODUCTS

2.1 GEOTEXTILE MATERIALS

A. Provide woven or non-woven geotextile silt fence material which meets or exceeds the following performance or physical specifications:

Physical Properties for Silt Fence Geotextile Material		
PROPERTY	**TEST VALUE**	**TEST METHOD**
Grab Tensile Strength (lb)	124 lbs	ASTM D4632
Grab Tensile Elongation (%)	20%	ASTM D4632
Mullen Burst (psi)	300	ASTM D3786
Puncture (lb)	65	ASTM D4833
Trapezoidal Tear (lb)	65	ASTM D4533
UV Resistance (% @ 500 hours)	80%	ASTM D4355
Apparent Opening Size (US Sieve)	30	ASTM D4751
Permittivity(sec-1)	0.1	ASTM D4491
Flow Rate (gal/min/ft2)	8	ASTM D4491

2.2 SITE STABILIZATION

A. Incorporate erosion control devices indicated on the Plans into the Project at the earliest practicable time.

D. Construct, stabilize and activate erosion controls before site disturbance within tributary areas of those controls.

E. Stockpile and waste pile heights shall not exceed 8 feet. Slope stockpile sides at 2: 1 or flatter.

F. Stabilize any disturbed area of affected erosion control devices on which activity has ceased and which will remain exposed for more than 20 days.
   1. Stabilize disturbed areas which are either at finished grade or will not be disturbed within one year in accordance with Section 02924 permanent seeding specifications.

G. Stabilize diversion channels, sediment traps, and stockpiles immediately.

2.3 FIELD QUALITY CONTROL

A. Inspect erosion control devices on a weekly basis and after each runoff event.

B. When inspection indicates erosion control devices are not effective, make necessary repairs to ensure controls are in good working order.

2.4 PROTECTION

A. Section 02200 - Earthwork Requirements: Requirements for protecting finished Work.

END OF SECTION

SECTION 02924: HYDROSEEDING (MURRAY ROAD ONLY)

1 PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Fertilizing
   2. Seeding
   3. Hydroseeding
   4. Mulching
   5. Maintenance

B. Related Sections:
   1. Section 02200 - Earthwork
   2. Section 02811 - Landscape Irrigation

1.2 REFERENCES

A. ASTM International:
   1. ASTM C602 - Standard Specification for Agricultural Liming Materials.

1.3 DEFINITIONS

A. Weeds: Vegetative species other than specified species to be established in given area.

1.4 SUBMITTALS

A. Section 01300 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit data for seed mix, fertilizer, mulch, and other accessories.

C. Manufacturer's Certificate: Certify Products specified requirements.

1.5 CLOSEOUT SUBMITTALS

A. Section 01700 - Contract Closeout: Requirements for submittals.

1.6 QUALITY ASSURANCE

A. Grasses, legumes, or cover crop seed of the type specified shall conform to the Standards for "Certified" grade seed or better as outlined by the State of Washington Department of Agriculture "Rules for Seed Certification," latest edition. Seed shall be furnished in standard containers on which shall be shown the following information:

1. Common and botanical names of seed.
2. Lot number.
3. Net weight.
4. Percentage of purity.
5. Percentage of germination (in case of legumes percentage of germination to include hard seed), and percentage of weed seed content and inert material clearly marked for each kind of seed in accordance with applicable State and Federal laws. Upon request, the Contractor shall furnish to Ecology's representative duplicate copies of a statement signed by the vendor certifying that each lot of seed has been tested by a recognized seed testing laboratory within six months before the date of delivery on the project. Seed that has become wet, moldy, or otherwise damaged in transit or storage will not be accepted.

1.7 QUALIFICATIONS

A. Seed Supplier: Company specializing in manufacturing Products specified in this section with minimum three years experience. All seed installers must have a business license issued by the Washington State Department of Licensing with a "seed dealer" endorsement. Upon request, the contractor shall furnish the Engineer with copies of the applicable licenses and endorsements.

B. Installer: Company specializing in performing work of this section with minimum three years documented experience and/or approved by manufacturer.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.

B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

2 PART 2 PRODUCTS

2.1 SEED MIXTURE

A. Furnish materials in accordance with State of Washington Department of Transportation standards.

B. Seed Mixture:

Grass Species	Pounds Pure Live Seed (PLS) per acre
Bluebunch Wheatgrass	7.55
Sandberg Bluegrass	1.38
Thickspike Wheatgrass	4.86
Sand dropseed	0.10
Crested Wheatgrass	2.08
Total Lbs PLS/Acre (Drill Seed)	16.00
Total Lbs PLS/Acre (Hydroseed)	25.00

2.2 ACCESSORIES

A. Mulching Material: Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable.

B. Fertilizer shall be supplied in one of the following forms:
1. A dry free-flowing granular fertilizer, suitable for application by agricultural fertilizer spreader.
2. A soluble form that will permit complete suspension of insoluble particles in water, suitable for application by power sprayer.
3. A homogeneous pellet, suitable for application through a ferti-blast gun.
4. A tablet or other form of controlled release with a minimum of a 6 month release period.

C. Lime: ASTM C602, Class T agricultural limestone containing a minimum 80 percent calcium carbonate equivalent.

D. Tackifier: Tackifiers used as a tie-down for seed and mulch shall be applied in quantities sufficient to equal the retention properties of guar when applied at the rate of 60 pounds per acre for slopes less than 2:1 and 120 pounds per acre for slopes greater than 2:1. Tackifier shall contain no growth or germination inhibiting materials nor significantly reduce infiltration rates. Tackifier shall hydrate in water and readily blend with other slurry materials. Tackifier options include:
1. Type A - Organic tackifier derived from natural organic plant sources.
2. Type B - Synthetic tackifier having an MSDS sheet that demonstrates to the satisfaction of Engineer that the product is not harmful to aquatic life.

E. Water: Clean, fresh and free of substances or matter capable of inhibiting vigorous growth of grass.